

Serial No. 10/803,411
Response to Office Action
Mailed September 27, 2005

Filed: March 18, 2004

Remarks

Claims 1-27, 34-48, 49-53, and 59-84 are pending in the present application. Claims 28-33 and 54-58 have been cancelled without prejudice or disclaimer of the subject matter contained therein. Claims 34-48 have been amended to correct scrivener's errors without changing or narrowing the scope of the claims. Claims 59-84 have been added to claim additional subject matter included in Applicant's specification. Applicant respectfully requests reconsideration and allowance of the pending claims in view of the following remarks.

Restriction Requirement

Applicant confirms the election of Invention I described by Claims 1-27 and 49-53. Applicant's election is without traverse. However, it is to be noted that Claims 1-27 and 49-53 do not describe any of the species illustrated by Figures 2, 3, and 4, and instead are directed to subject matter included in the example illustrated in Figure 1 of Applicant's specification, among others. Accordingly, in response to the election of species requirement, Applicant respectfully elects the example illustrated in Figure 1. Claims 1-27 and 49-53 are directed to subject matter included in the example illustrated in Figure 1.

Generic Claims

New Claims 59-84 are drawn to Invention I, an apparatus for sensing the current in a power line of a power system. New Claims 59-84 are also directed to subject matter that is included in the species defined in the office action mailed September 27, 2005 to be illustrated by Figures 2, 3, and 4. New Claims 59-84 are also directed to subject matter that is included in the example illustrated in Figure 1.

PTO-892 INCLUDED WITH OFFICE ACTION MAILED SEPTEMBER 27, 2005

U.S. Patent No. 5,066,904 to Bullock was cited in the rejection of most of the claims in the office action mailed September 27, 2005, but was not cited in the PTO-892 included with the office action. Accordingly, Applicant respectfully requests issuance of a Supplemental PTO-892 citing U.S. Patent No. 5,066,904 to Bullock.

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The 35 USC §102(b) rejections

Claims 1-18, 20, 21, 24-27, and 49-53 stand rejected pursuant to 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,066,904 to Bullock (hereafter referred to as "Bullock"). Applicant respectfully traverses these rejections because Bullock fails to teach each and every limitation of the claims.

Claims 1-18, 20, 21, 24-27

Claim 1 describes an apparatus for sensing the current in a power line of a power system. The apparatus includes an active current transformer set within an enclosure and operative to produce a scaled version of the current. In addition, the apparatus of Claim 1 includes an amplifier coupled with the active current transformer and operative to reduce the phase shift and ratio error between the current and the scaled version of the current. The apparatus also includes a powering current transformer set within the enclosure and operative to receive power from the power line on a primary winding and deliver power on a secondary winding. Further, the apparatus includes power supply circuitry set within the enclosure, the power supply circuitry powered through the secondary winding from the powering current transformer and operative to supply power to the amplifier.

Bullock, on the other hand, teaches a current sensor that includes a secondary winding (20) wrapped around a core (18) that is used to sense the presence of alternating flux in the core caused by an alternating input current and provide a voltage induced in the secondary winding to an amplifier (24). (Col. 7 lines 58-65) Bullock also teaches a feedback winding (22) wrapped around the core and receiving an output of the amplifier. (Col. 7 lines 66-68) The feedback winding provides an output signal that is a scaled version of the input alternating current. (Col. 7 line 68, Col. 8 lines 1-2 and 27-32)

In the office action mailed September 27, 2005 it was asserted that Bullock's secondary winding was equivalent to the powering current transformer described in Claim 1. As previously described, the secondary winding circuit taught by Bullock senses a primary current and provides an input signal to an amplifier, which is entirely different than receiving power from a power line and delivering power as described in Claim 1. (Col. 7 lines 61-65) Even if Bullock's secondary winding circuit was equivalent to the powering current transformer described in Claim 1, which

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is clearly not the case, Bullock fails to teach or suggest that the secondary winding powers power supply circuitry as described in Claim 1. To the contrary, in Bullock the output of the secondary winding is provided as a signal to Bullock's amplifier, thus, Bullock's secondary winding is not powering anything, but is instead providing a signal indicative of a sensed alternating flux.

In addition, in the office action mailed September 27, 2005, it was asserted that the amplifier input d.c. offset voltage (Vos) of Bullock (Fig. 9a) is equivalent to the power supply circuitry described in Claim 1. To the contrary, Bullock teaches that the amplifier input d.c. offset voltage (Vos) is a small input voltage present in all amplifiers. (Col. 17 lines 27-33) Even if the amplifier input d.c. offset voltage (Vos) was somehow equivalent to the power supply circuitry described in Claim 1, which is clearly not the case, the amplifier input d.c. offset voltage (Vos) of Bullock is clearly not supplying power to an amplifier operative to reduce a phase shift and ratio error as described in Claim 1. To the contrary, Bullock's amplifier is operating with a comparator to keep the alternating magnetic flux near zero. (Col. 8 lines 6-9) Clearly, Bullock's amplifier is not operative to reduce a phase shift and ratio error as described in Claim 1, and is not being powered by the amplifier input d.c. offset voltage (Vos).

For at least the foregoing reasons Claim 1 is patentable over Bullock. Claims 2-18, 20, 21, and 24-27 are dependent on Claim 1, and are therefore patentable over Bullock for at least the same reasons. Applicant respectfully requests withdrawal of the 35 U.S.C. § 102(b) rejection of Claims 1-18, 20, 21, and 24-27.

Claims 49-53

Claim 49 describes an apparatus for sensing the current in a power line of a power system. The apparatus includes an active current transformer set within an enclosure and operative to produce a scaled version of the current. The current contains frequency components that are substantially within a first range. The apparatus also includes an amplifier coupled with the active current transformer and operative to reduce the phase shift and ratio error between the current and the scaled version of the current. A powering current transformer operative to receive power from the power line on a primary winding and deliver power on a secondary winding is also included in the apparatus. In addition, the apparatus includes at least one of secondary leads and secondary terminals extending from the enclosure that are coupled with the active current transformer and operative to deliver the scaled version of the current outside of the

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enclosure. The apparatus also includes power supply circuitry set within the enclosure. The power supply circuitry is operative to extract power flowing within a second range of frequencies through the at least one of secondary leads and secondary terminals. The power supply circuitry is operative to supply power to the amplifier.

In stark contrast, Bullock does not teach or suggest a powering current transformer or power supply circuitry operative to supply power to an amplifier that is operative to reduce the phase shift and ratio error between the current and a scaled version of the current as described in Claim 49. Instead, as previously discussed, Bullock teaches only a secondary winding that senses a flux and provides a signal to an amplifier. Bullock also does not teach or suggest an active current transformer that senses a current that contains frequency components that are substantially within a first range, and power supply circuitry that is operative to extract power flowing within a second range of frequencies through at least one of secondary leads and secondary terminals as also described in Claim 49. Contrary to the assertions of the office action mailed September 27, 2005, Bullock fails to teach power supply circuitry, and therefore could not possibly teach power supply circuit operative to extract power flowing within a second range of frequencies through at least one of secondary leads and secondary terminals as also described in Claim 49.

For at least the foregoing reasons Claim 49 is patentable over Bullock. Claims 50-53 are dependent on Claim 49, and are therefore patentable over Bullock for at least the same reasons. Applicant respectfully requests withdrawal of the 35 U.S.C. § 102(b) rejection of Claims 49-53.

New Claims 59-84

None of the cited prior art teaches, suggests or discloses the limitations described in new Claims 59-84.

Conclusion

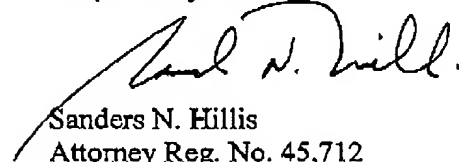
The application is believed to now be in condition for allowance, which is respectfully requested. Should the Examiner deem a telephone conference to be beneficial in expediting

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examination and/or allowance of this application, the Examiner is invited to call the undersigned attorney at the telephone number listed below.

Respectfully submitted,


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